

REMARKS

I. Introduction

The Office Action of October 28, 2009 has been reviewed and the Examiner's comments carefully considered. Claims 1-15 were previously pending in this application. The present Amendment amends claims 1 and 2 and adds new claim 16 all in accordance with the originally-filed specification. No new matter has been added. Specifically, support for these amendments can be found on page 7, lines 1-9 and page 17, lines 4-30 of the specification of the above-referenced application. Additionally, withdrawn claims 9-15 are cancelled by the present Amendment. The Applicants reserve the right to file a divisional application directed to the non-elected, cancelled claims. Accordingly, claims 1-8 and 16 are currently pending, and claim 1 is in independent form.

II. 35 U.S.C. § 103 Rejection

Claims 1-8 stand rejected under 35 U.S.C. § 103(a) as obvious over United States Patent Application Publication No. 2003/0026063 to Munshi (hereinafter "the Munshi publication") in view of United States Patent No. 6,797,428 to Skotheim et al. (hereinafter "the Skotheim patent"). In view of the above amendments and the following remarks, the Applicants respectfully request reconsideration of this rejection.

As defined by amended independent claim 1, the present invention is directed to an electricity storage device that includes a polymer electrolyte and polarizable electrodes. The polarizable electrodes each comprise an interface with the polymer electrolyte. The polarizable electrodes are metal electrodes. A negative electrode of the polarizable electrodes has, at its interface with the polymer electrolyte, a lithium alloy with a metal component contained in the negative electrode. The lithium alloy is capable of releasing lithium ions through a reversible electrochemical oxidation-reduction reaction. The negative electrode is formed in the polymer electrolyte such that the polymer electrolyte includes the metal component and a polymer electrolyte component. The metal component is rich in a region in a vicinity of an outer side of the polymer electrolyte, and the polymer electrolyte is rich in a region in a vicinity of a center of the polymer electrolyte.

The Munshi publication is directed to an electrochemical capacitor (100) that includes a polymer thin film (12), a liquid electrolyte absorbed in the polymer thin film (12), and thin flexible active electrode layers constituting anode (10) and cathode (30) composed of energy dense material of high intrinsic surface area positioned at either side of the electrolyte-retaining polymer thin film (12) to tightly sandwich it between the electrode layers. The capacitor (100) includes a polymer electrolyte in which a polymer thin film (12) is cast from the base polymer and impregnated with the electrolyte solution, which contains a salt for ionic conduction (*see* FIGS. 1A-1C and 2).

The Munshi publication, whether considered alone or in combination with the Skotheim patent, does not teach or suggest that the negative electrode includes a lithium alloy with a metal component provided at the interface with the polymer electrolyte or that the negative electrode is formed in the polymer electrolyte such that the polymer electrolyte includes the metal component and a polymer electrolyte component where the metal component is rich in a region in a vicinity of an outer side of the polymer electrolyte, and the polymer electrolyte is rich in a region in a vicinity of a center of the polymer electrolyte as required by amended independent claim 1. The Examiner admits that the Munshi publication fails to teach or suggest that the negative electrode includes a lithium alloy with a metal component provided at the interface with the polymer electrolyte on page 3 of the Office Action.

However, the Examiner contends that the Skotheim patent discloses the use of a negative electrode that comprises a lithium alloy with a metal component. While the Skotheim patent discloses an anode active layer that includes a first layer of lithium metal, a second layer of a temporary protective material such as copper or gold, and a multilayer structure in contact with a surface of the second layer (*see* column 16, lines 24-45), there is no teaching or suggestion in the Skotheim patent that this lithium layer is provided at an interface with a polymer electrolyte as required by independent claim 1.

In addition, the capacitor disclosed in the Munshi publication, whether considered alone or in combination with the Skotheim patent, does not have the same structure as the claimed electricity storage device. More specifically, the Munshi publication does not teach or suggest that the negative electrode is formed in the polymer electrolyte such that the polymer

electrolyte includes the metal component and a polymer electrolyte component where the metal component is rich in a region in a vicinity of an outer side of the polymer electrolyte, and the polymer electrolyte is rich in a region in a vicinity of a center of the polymer electrolyte as required by amended independent claim 1. The Skotheim patent does not cure this deficiency.

To establish *prima facie* obviousness of a claimed invention, all of the claim limitations must be taught or suggested by the prior art. Where claimed limitations are simply not present in the prior art, a *prima facie* obviousness rejection is not supported. Accordingly, since the Munshi publication, whether considered alone or in combination with the Skotheim patent, fails to teach or suggest several elements required by amended independent claim 1 as discussed hereinabove, a *prima facie* case of obviousness has not been established.

For the foregoing reasons, the Applicants believe that the subject matter of amended independent claim 1 is not rendered obvious by the combination of the Munshi publication and the Skotheim patent. Reconsideration of the rejection of claim 1 is respectfully requested.

Claims 2-8 depend from and add further limitations to amended independent claim 1, and are believed to be patentable for at least the reasons discussed hereinabove in connection with amended independent claim 1. Reconsideration of the rejection of claims 2-8 is respectfully requested.

III. New Claim

New claim 16 has been added by this Amendment. New claim 16 depends from independent claim 1. No new matter has been added. Support for this claim can be found in the specification and drawings as originally filed. Specifically, support for this claim can be found on page 7, lines 1-9 of the specification of the present application. New claim 16 is also believed to be allowable over the prior art of record for at least the reasons discussed hereinabove in connection with amended independent claim 1.

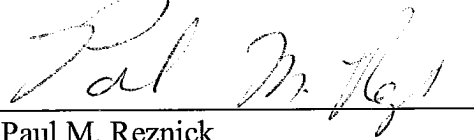
Application No. 10/582,548
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Attorney Docket No. 3163-061714

IV. Conclusion

Based on the foregoing amendments and remarks, reconsideration of the rejections and allowance of pending claims 1-8 and 16 are respectfully requested. Should the Examiner have any questions or wish to discuss the application in further detail, the Examiner is invited to contact Applicants' undersigned representative by telephone at 412-471-8815.

Respectfully submitted,

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